GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

Protecting Georgia's Waters

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Watershed Protection Branch

Confluence
March 18, 2023

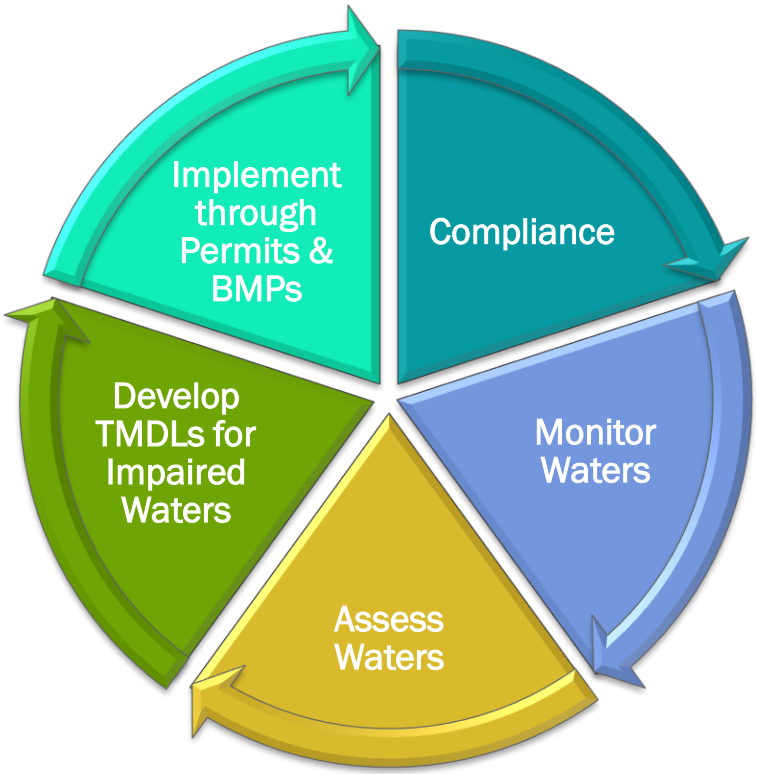
OUTLINE

- From the streams…
  - Water quality standards – nutrients
  - Regional Water Planning update
  - Deep wells project
- To the tap.
  - PFAS update
  - Lead service lines

BACKGROUND – WATER QUALITY STANDARDS

- Designated uses
  - Drinking Water, Recreation, Fishing, Wild River, Scenic River, Coastal Fishing
- Water quality criteria
  - Protect the designated use
  - Narrative and numeric
- Anti-degradation policy

BACKGROUND – WATER QUALITY STANDARDS

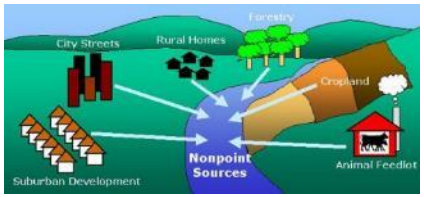


Establish Water Quality Standards

BACKGROUND – WATER QUALITY STANDARDS

- Water Quality in Georgia published every two years
  - List of waters supporting and not supporting water quality standards
- TMDLs to be developed for waters on 303(d) list
- TMDL = Pollutant budget
- Allocated among point and nonpoint sources
  - Permit limits for point source dischargers
  - BMPs for nonpoint sources

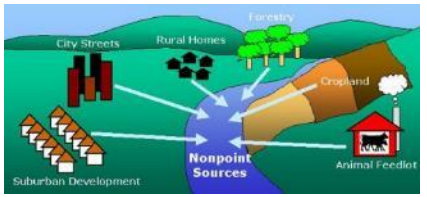
$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$



BACKGROUND – WATER QUALITY STANDARDS

$$TMDL = \Sigma WLAs + \Sigma LAs + MOS$$

- Section 402 – NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
  - Point source discharges – wastewater and stormwater
  - Permit limits and best management practices



- Section 319 – NONPOINT SOURCE MANAGEMENT PROGRAMS
  - Statewide plan to manage nonpoint source pollution
  - Includes activities from regulations to outreach
  - 319(h) grants

HISTORY OF GEORGIA NUTRIENT MANAGEMENT

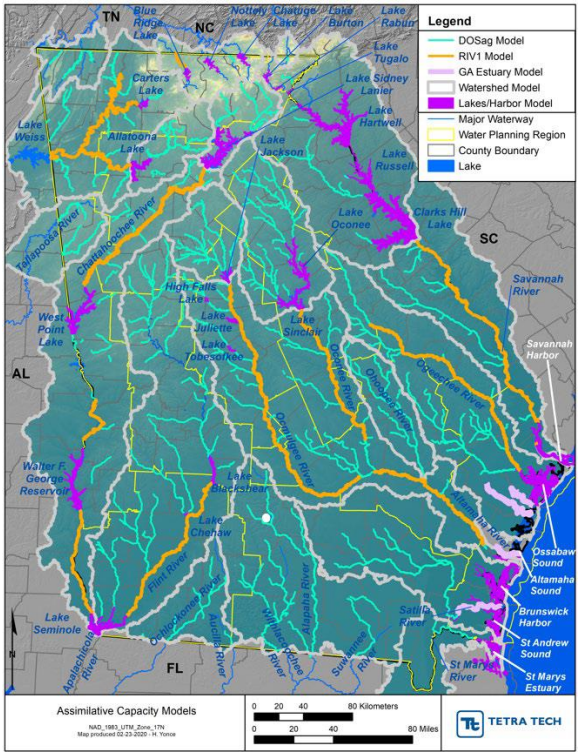
- 1990 Georgia Lake Law
- By 2002, EPD completed comprehensive studies and developed water quality standards for 6 major lakes.
- 2005: EPD adds nutrients to rivers and streams monitoring program.
- 2008: Plan for the Adoption of WQ Standards for Nutrients (revised in 2011 and 2013)
- 2011: Strategy for Addressing Phosphorus in NPDES Permitting
  - Primary pollutant associated with eutrophication in Georgia's freshwater lakes
  - Required monitoring, and for some permits, effluent limits
  - Strategy focused on dischargers above/into lakes or impaired waters
- Since 2017: including nitrogen monitoring nitrogen in NPDES permits.
- We still need more data to adequately develop protective and defensible effluent limits.

GEORGIA NUTRIENT WQ STANDARDS

Lake	TN	TP	Chlorophyll-a
West Point	4.0 mg/L	2.4 lbs per acre-ft of lake volume per year	22 µg/L (upstream from the dam in the forebay) 24 µg/L (LaGrange Water Intake)
Walter F. George	3.0 mg/L	2.4 lbs per acre-ft of lake volume per year	18 µg/L (mid-river at US HWY 82) 15 µg/L (mid-river in the dam forebay)
Jackson	4.0 mg/L	5.5 lbs per acre-ft of lake volume per year	20 µg/L (~2 miles downstream of the confluence of South and Yellow Rivers)
Allatoona	4.0 mg/L	1.3 lbs per acre-ft of lake volume per year	10 µg/L (upstream from the dam) 12 µg/L (Allatoona Creek upstream from I-75) 10 µg/L (mid-lake downstream from Kellogg Creek) 15 µg/L (Little River upstream from HWY 205) 14 µg/L (Etowah River upstream from Sweetwater Creek)
Sidney Lanier	4.0 mg/L	0.25 lbs per acre-ft of lake volume per year	5 µg/L (upstream from the Buford dam forebay) 6 µg/L (upstream from the Flowery Branch confluence) 7 µg/L (at Browns Bridge Road) 10 µg/L (at Bolling Bridge on Chestatee River) 10 µg/L (at Lanier Bridge on Chattahoochee River)
Carters	4.0 mg/L	172,500 pounds or 0.46 lbs per acre-ft of lake volume per year	10 µg/L (Carters Lake upstream from Woodring Branch) 10 µg/L (Carters Lake at Coosawattee River embayment mouth)
Oconee			26 µg/L (Oconee Arm at HWY 44) 15 µg/L (Richland Creek Arm) 18 µg/L (Upstream from the Wallace Dam forebay)
Sinclair			14 µg/L (Oconee River Arm mid-lake) 14 µg/L (Little River and Murder Creek Arm upstream from HWY 441) 10 µg/L (Upstream from the Sinclair Dam forebay)

NUTRIENT PERMITTING STRATEGY

- EPA's April 5, 2022 memo, "Accelerating Nutrient Pollution Reductions in the Nation's Waters"
- EPA feedback to EPD: facilities with the potential to discharge a pollutant of concern, *such as nitrogen*, must go through a Reasonable Potential Analysis (RPA) to determine if the discharge has the reasonable potential to cause or contribute to an instream WQ standard violation.
- Results of the RPA may require numeric effluent limits for nitrogen.
- EPD public noticed a draft Roadmap for the development of a Comprehensive Nutrient Permitting Strategy.
- Kick-off Meeting held on August 17, 2022.

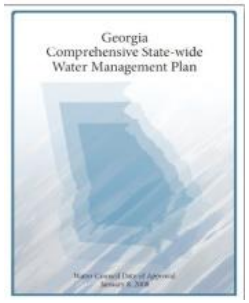


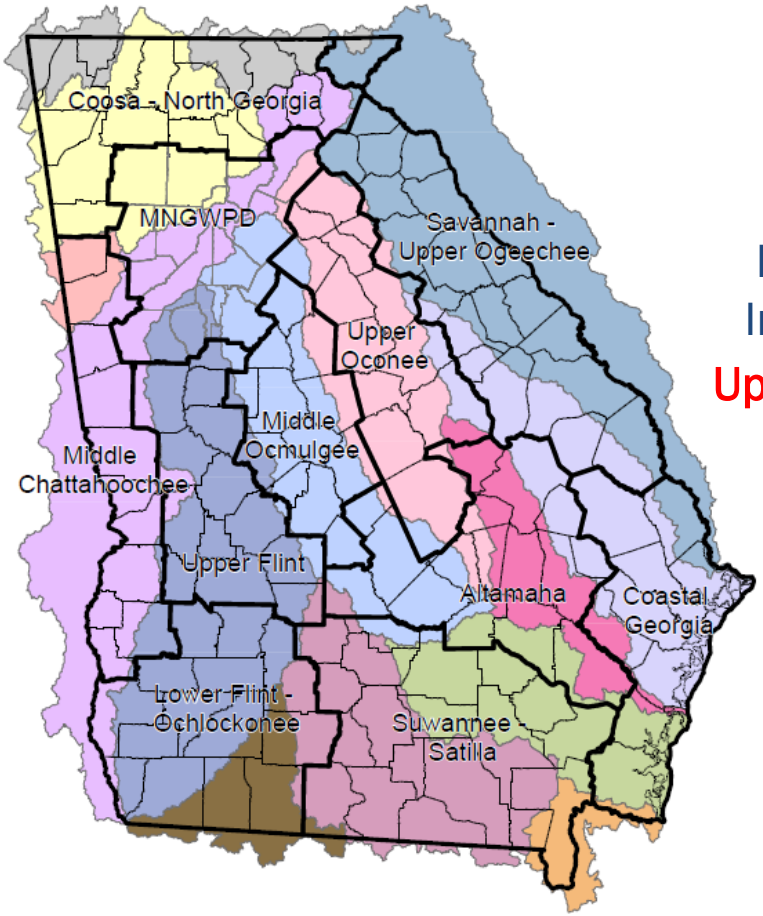
DRAFT NUTRIENT ROADMAP

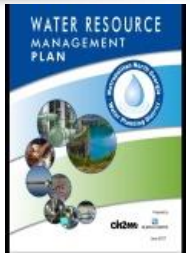
- What specific issues does this roadmap seek to address?
  - Lack of a reasonable potential analysis and cohesive permitting strategy for TN where water quality based effluent limits would apply.
  - Necessary updates to the 2013 “Georgia’s Plan for the Adoption of Water Quality Standards for Nutrients,” which the document itself references.
  - Transparency: stakeholder feedback from previous strategy development indicated that stakeholders felt that they were brought into the process too late to provide meaningful feedback. By engaging stakeholders in the discussion of the steps necessary to fully develop a comprehensive and appropriate strategy, we hope to increase transparency and work collaboratively.
- Everything in the roadmap is open to feedback.
- Next steps: a second draft of the roadmap incorporating stakeholder feedback; updates to the CNOP guidance based on stakeholder feedback.

REGIONAL WATER PLANNING UPDATE

Georgia's Regional Water Plans







Metro Water District
Plans in 2003 & 2009
Integrated Plan in 2017
Updated Plan by Dec. 2022

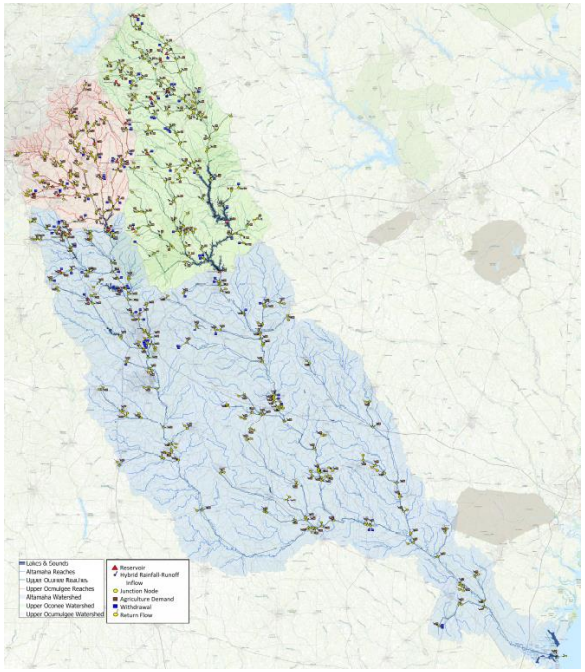
Water Planning Regions
Adopted in 2011
Updated in 2017
Updated Plans by June 2023

Forecasts of Water Demands & Returns

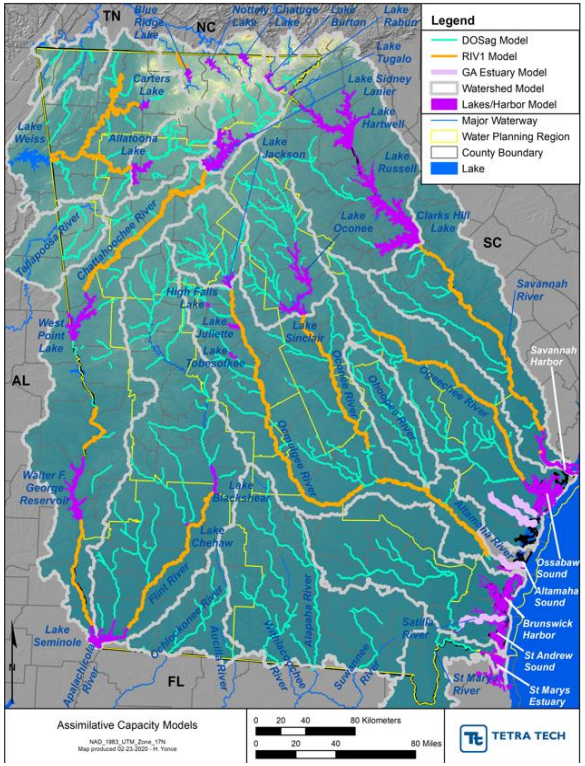
- 4 Sectors for Forecasting
  - Municipal
  - Industrial
  - Energy

  } Expert & Stakeholder Groups Provided Input

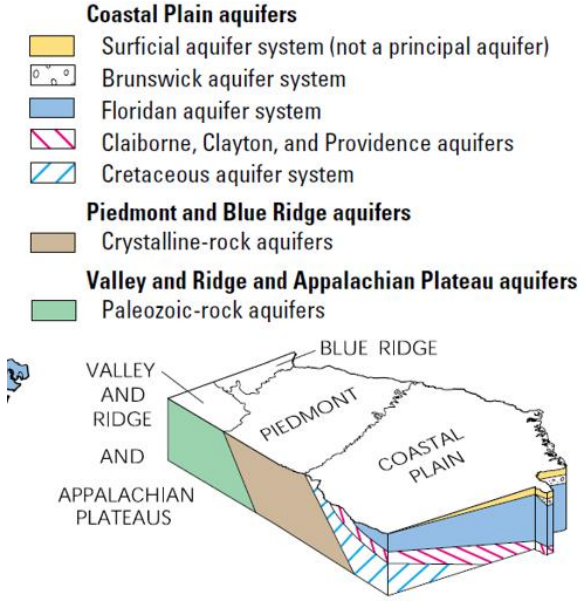
  - Agricultural → Albany State/UGA, with expert review
- Water Demand & Return Forecasts extend out to 2060



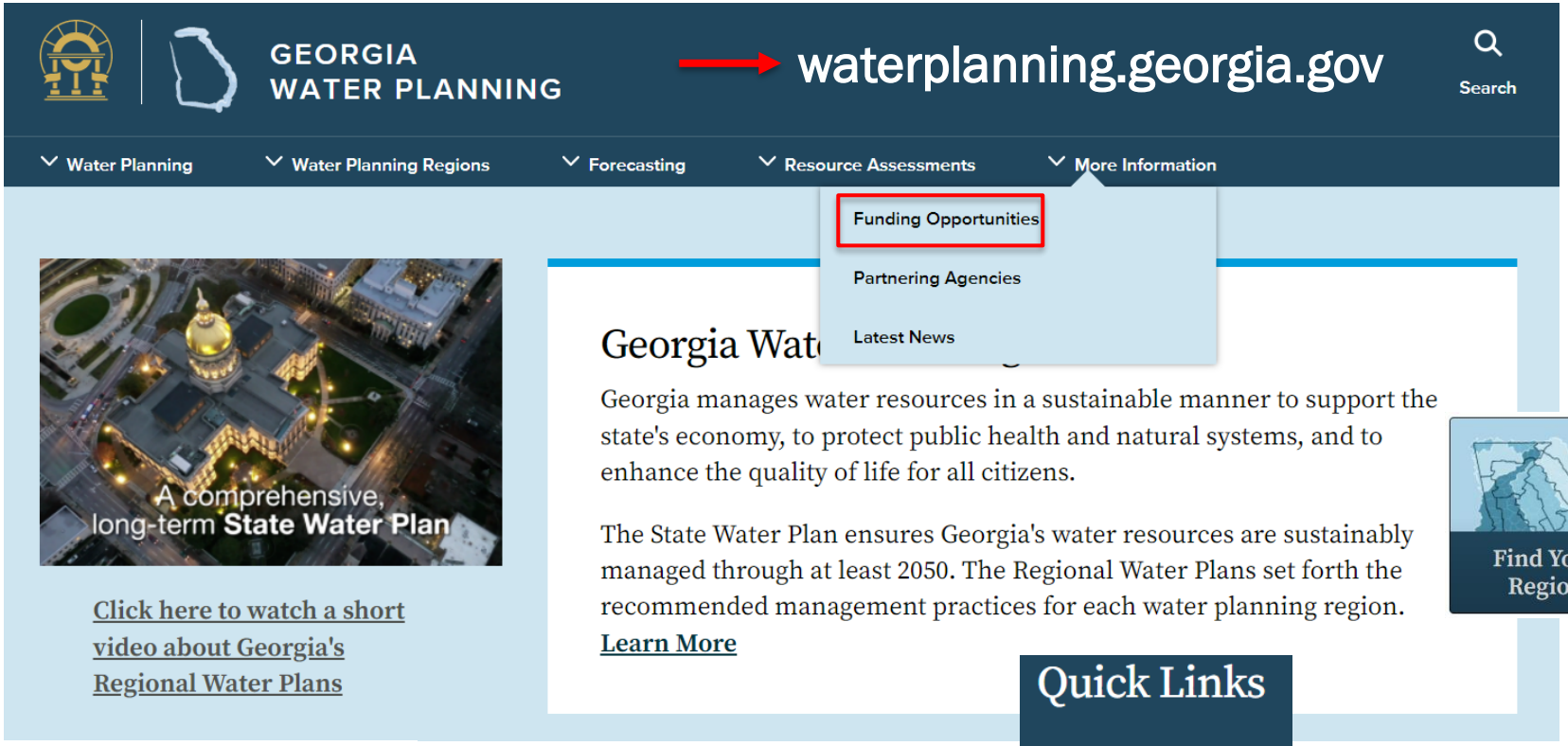
- Surface Water Availability



- Surface Water Quality



- Groundwater Availability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A comprehensive, long-term State Water Plan
Click here to watch a short video about Georgia's Regional Water Plans
Georgia Wat
Georgia manages water resources in a sustainable manner to support the state's economy, to protect public health and natural systems, and to enhance the quality of life for all citizens.
The State Water Plan ensures Georgia's water resources are sustainably managed through at least 2050. The Regional Water Plans set forth the recommended management practices for each water planning region.
Learn More
Find Your Region
Quick Links
State Water Plan
Get Email Updates
Upcoming Meetings

DEEP WELLS PROJECT

TIMELINE

- Water withdrawal moratorium – 1999
- Flint river drought protection act – 2000
- Flint River Basin Regional Water Development and Conservation Plan – 2006
- Original Regional Water Plans for Upper and Lower Flint – 2011
- Water withdrawal moratorium – 2012
- First update of the Regional Water Plans for Upper and Lower Flint – 2017
- Seed Grant: Water Supply Alternatives for Agricultural Surface Water Irrigators in Ichawaynochaway Sub-Basin – 2017
- Agricultural Water Source Conversion for Streamflow Resilience (ASU and EPD ARPA grant) – 2022

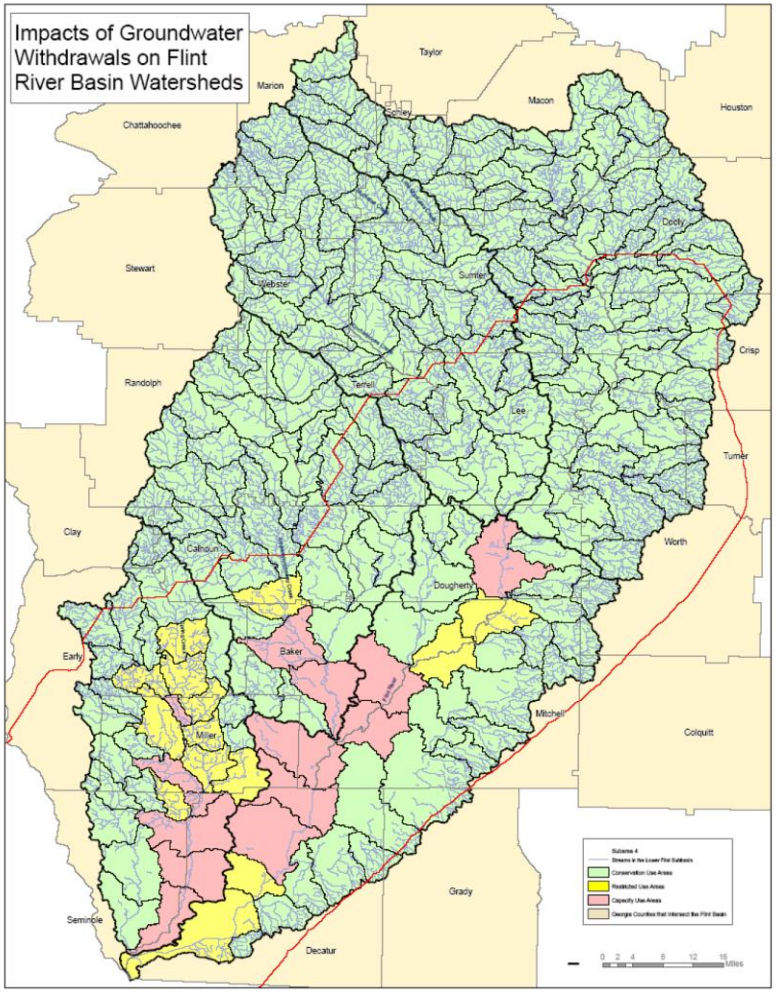


Figure 0.2. Classification of HUC-12 watersheds in the lower Flint River Basin.

AGRICULTURAL WATER SOURCE CONVERSION FOR STREAMFLOW RESILIENCE

- Albany State University – Georgia Water Policy and Planning Center, Golden Triangle RC&D, and Georgia EPD are partnering on a $49 million APRA-funded project to protect stream flows in the Flint River.
- The project will install 242 wells serving approximately 20,000 acres, with an estimated surface water savings of 75 cfs or more during drought. Other things the project will develop include:
  - Monitoring wells to better understand the Claiborne and Cretaceous aquifers.
  - Habitat conservation plan, which will outline water management strategies and priorities for the region.

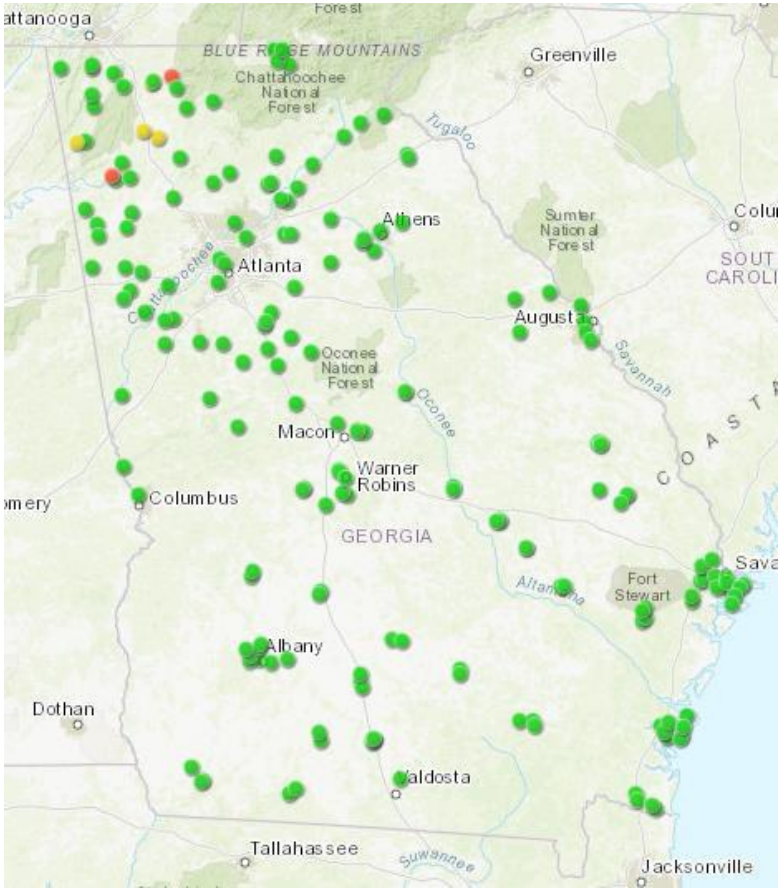
PFAS UPDATE

PFAS BACKGROUND

- Resistant to heat, water and oil, and used in many consumer goods. PFOA and PFOS just two of thousands of PFAS chemicals.
- Peer-reviewed studies of laboratory animals and epidemiological studies of human populations indicate that exposure to PFOA and PFOS over certain levels may result in adverse health effects.
- In 2016, EPA established health advisory levels at 70 parts per trillion for PFOA and PFOS in drinking water.

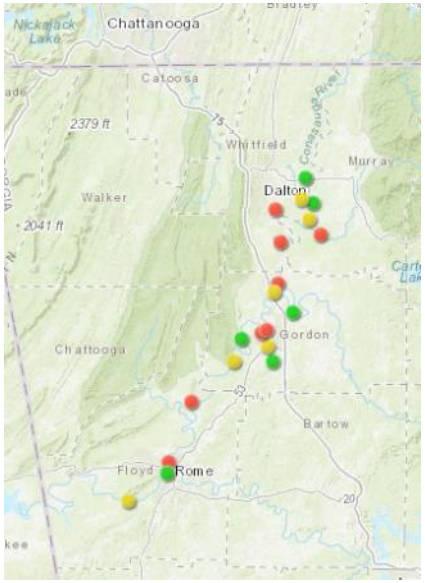
PFAS IN DRINKING WATER – UCMR3

- Unregulated Contaminant Monitoring Rule 3
- PFOA: Calhoun, Rome, Summerville, Chatsworth, and Dalton Utilities.
- PFOS: Rome and Chatsworth.

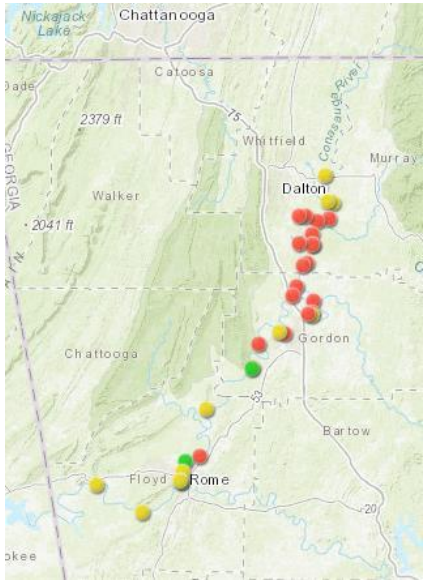


PFAS IN SURFACE WATER

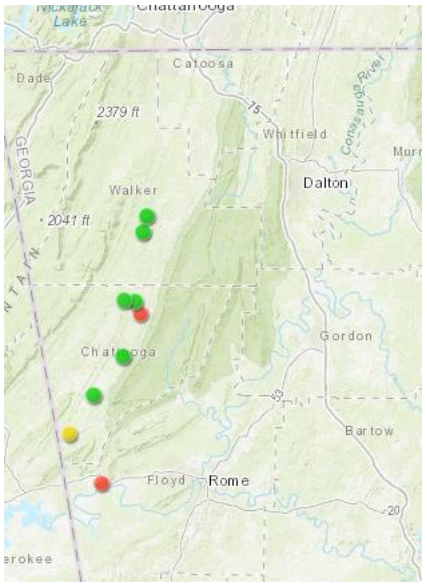
- Coosa Basin primary location of surface water monitoring.
- Monitoring by both EPD and EPA throughout the last eight years.



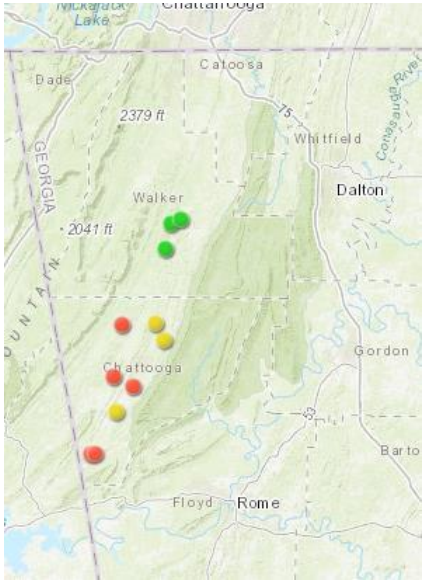
2012



2016



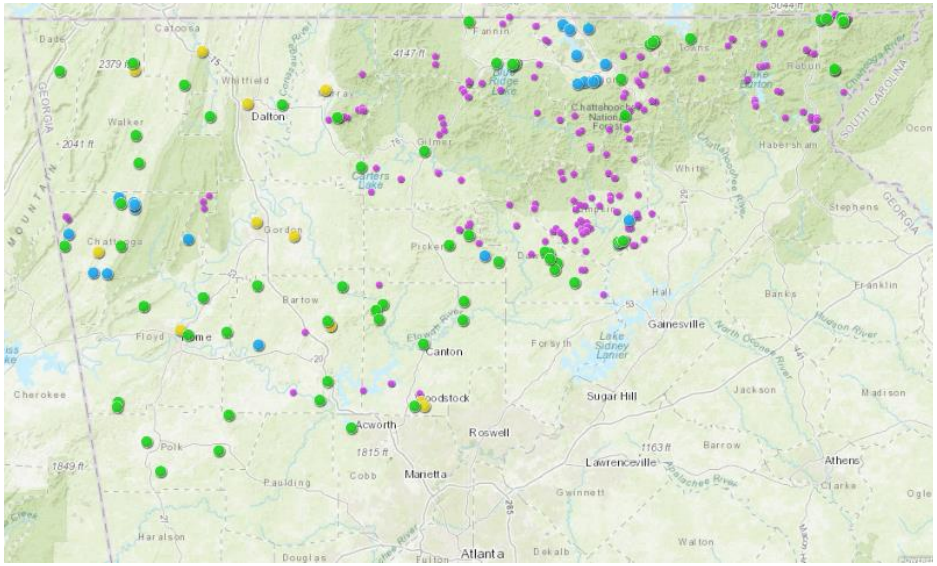
2018



2019

EPD PFAS SURVEY – PHASE I

- Because PFAS has already been found near or above EPA's lifetime health advisory level in the Coosa basin, the first phase of PFAS sampling focused on the Coosa and Tennessee basins. Sample kits were sent to:
  - all surface water public drinking water systems regardless of the population served, and
  - all groundwater public drinking systems serving a population of 500 or more.

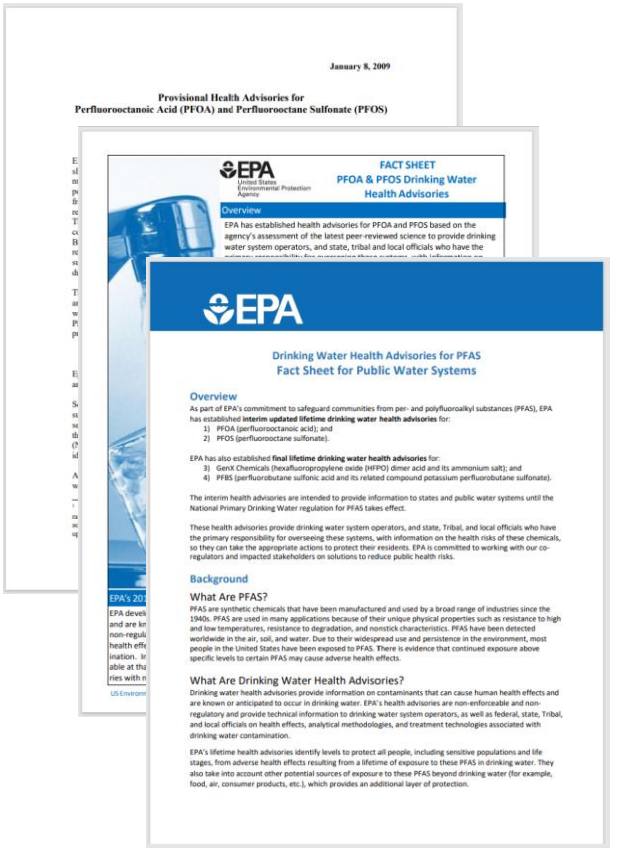


EPD PFAS SURVEY – PHASE II

- For Phase II, EPD will prioritize:
  - all large public water systems serving a population greater than 100,000;
  - public water systems located near significant DOD installations (Fort Stewart, Robins Air Force Base, and Moody Air Force Base); and
  - a small public water system serving a population less than 500 located in Cherokee County near a larger system with PFAS detections.
- This effort is expected to cover:
  - all surface water public drinking water systems, and
  - all groundwater public drinking water systems serving a population of 500 or more.

PFAS – HEALTH ADVISORIES UPDATE

- On June 15, 2022, EPA published lifetime health advisories for: GenX (10 ppt) and PFBS (2,000 ppt).
- EPA also updated the lifetime health advisories for PFOA (0.004 ppt) and PFOS (0.02 ppt) with interim health advisories.
- Analytical methods can detect PFOA and PFOS down to 4 ppt.



January 8, 2009

Provisional Health Advisories for
Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS)

EPA
United States Environmental Protection Agency

FACT SHEET
PFOA & PFOS Drinking Water Health Advisories

Overview

EPA has established health advisories for PFOA and PFOS based on the agency's assessment of the latest peer-reviewed science to provide drinking water system operators, and state, tribal and local officials who have the

EPA

Drinking Water Health Advisories for PFAS
Fact Sheet for Public Water Systems

Overview

As part of EPA's commitment to safeguard communities from per- and polyfluoroalkyl substances (PFAS), EPA has established **interim updated lifetime drinking water health advisories** for:

1) PFOA (perfluorooctanoic acid); and
2) PFOS (perfluorooctane sulfonate).

EPA has also established **final lifetime drinking water health advisories** for:

3) GenX Chemicals (hexafluoropropylene oxide (HFPO) dimer acid and its ammonium salt); and
4) PFBS (perfluorobutane sulfonic acid and its related compound potassium perfluorobutane sulfonate).

The interim health advisories are intended to provide information to states and public water systems until the National Primary Drinking Water regulation for PFAS takes effect.

These health advisories provide drinking water system operators, and state, Tribal, and local officials who have the primary responsibility for overseeing these systems, with information on the health risks of these chemicals, so they can take the appropriate actions to protect their residents. EPA is committed to working with our co-regulators and impacted stakeholders on solutions to reduce public health risks.

Background

What Are PFAS?

PFAS are synthetic chemicals that have been manufactured and used by a broad range of industries since the 1940s. PFAS are used in many applications because of their unique physical properties such as resistance to high and low temperatures, resistance to degradation, and nonstick characteristics. PFAS have been detected worldwide in the air, soil, and water. Due to their widespread use and persistence in the environment, most people in the United States have been exposed to PFAS. There is evidence that continued exposure above specific levels to certain PFAS may cause adverse health effects.

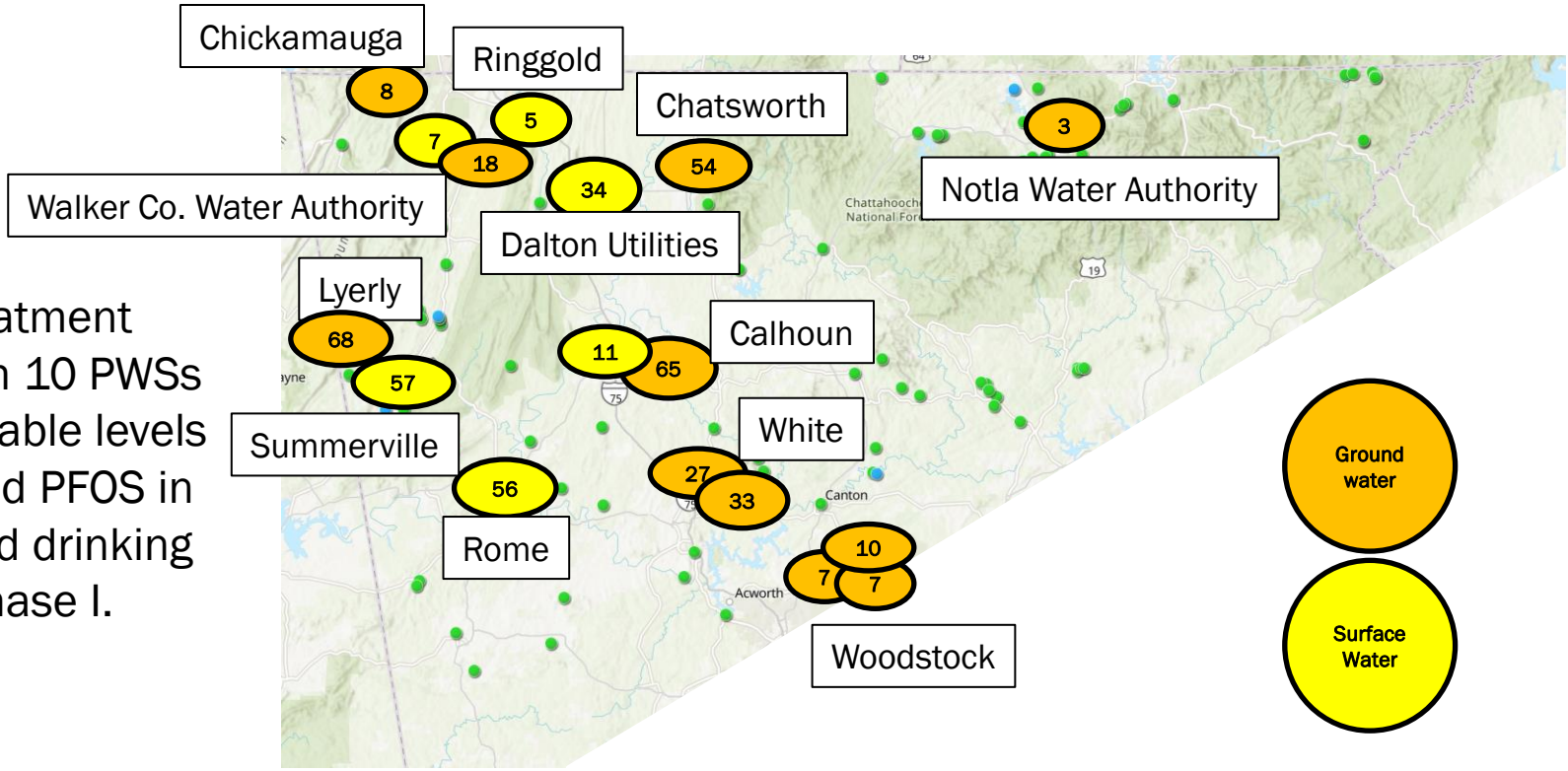
What Are Drinking Water Health Advisories?

Drinking water health advisories provide information on contaminants that can cause human health effects and are known or anticipated to occur in drinking water. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to drinking water system operators, as well as federal, state, Tribal, and local officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination.

EPA's lifetime health advisories identify levels to protect all people, including sensitive populations and life stages, from adverse health effects resulting from a lifetime of exposure to these PFAS in drinking water. They also take into account other potential sources of exposure to these PFAS beyond drinking water (for example, food, air, consumer products, etc.), which provides an additional layer of protection.

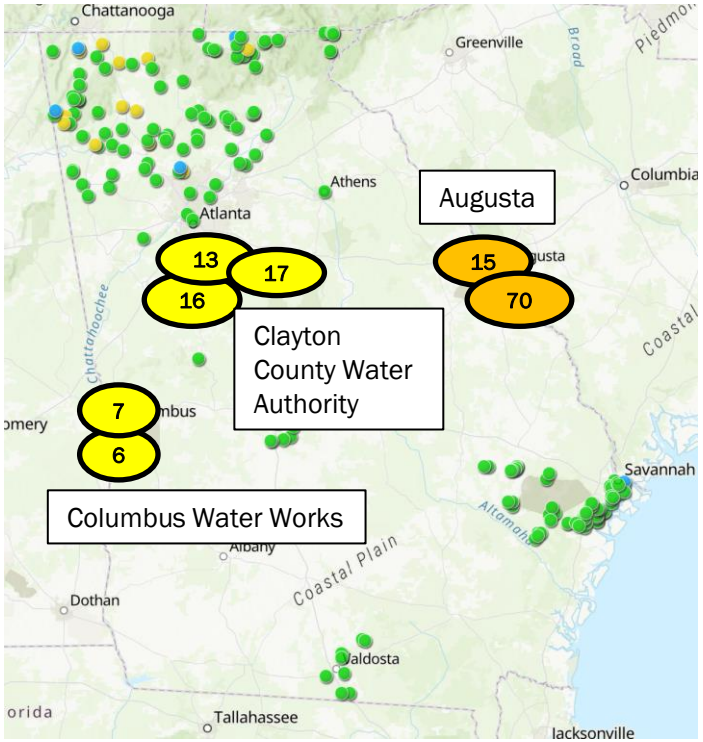
HEALTH ADVISORIES UPDATE – PHASE I

Fifteen treatment plants from 10 PWSs had detectable levels of PFOA and PFOS in the finished drinking water in Phase I.



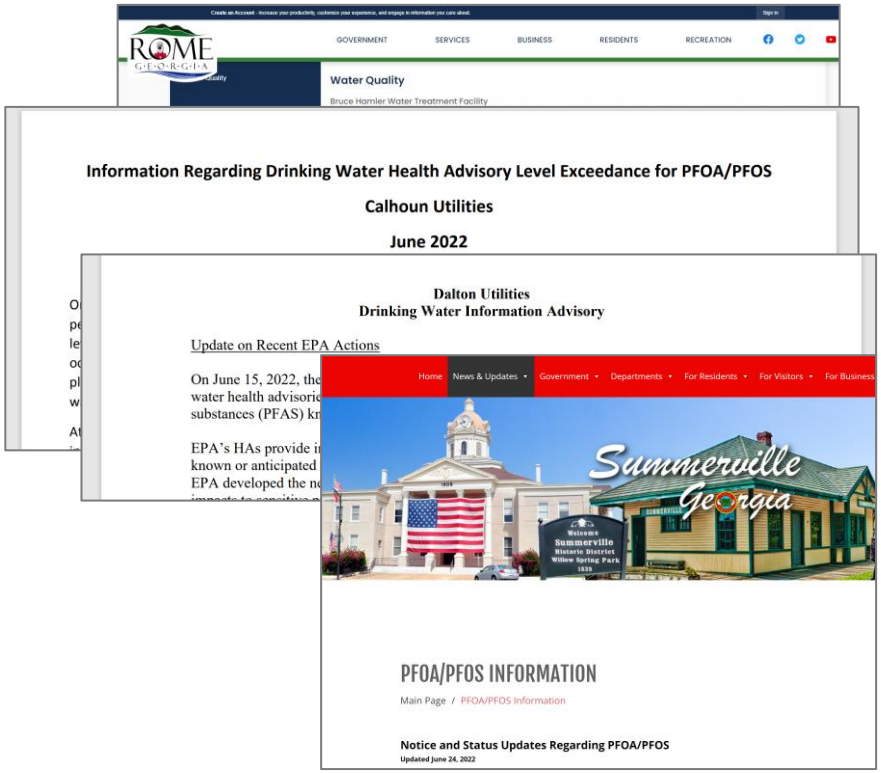
HEALTH ADVISORIES UPDATE – PHASE II

Seven treatment plants from three PWS had confirmed detectable levels of PFOA and PFOS in the finished drinking water.



PFAS – AFFECTED PWS & NEXT STEPS

- The next steps for these systems varies depending on the level of PFOA and PFOS, but generally follow EPA's recommendations:
  - Assess PFAS levels – confirmation samples for PWS with levels less than 50% of previous HAL
  - Inform the public – web postings
  - Reduce exposure – those PWS not awaiting confirmation samples have taken immediate action



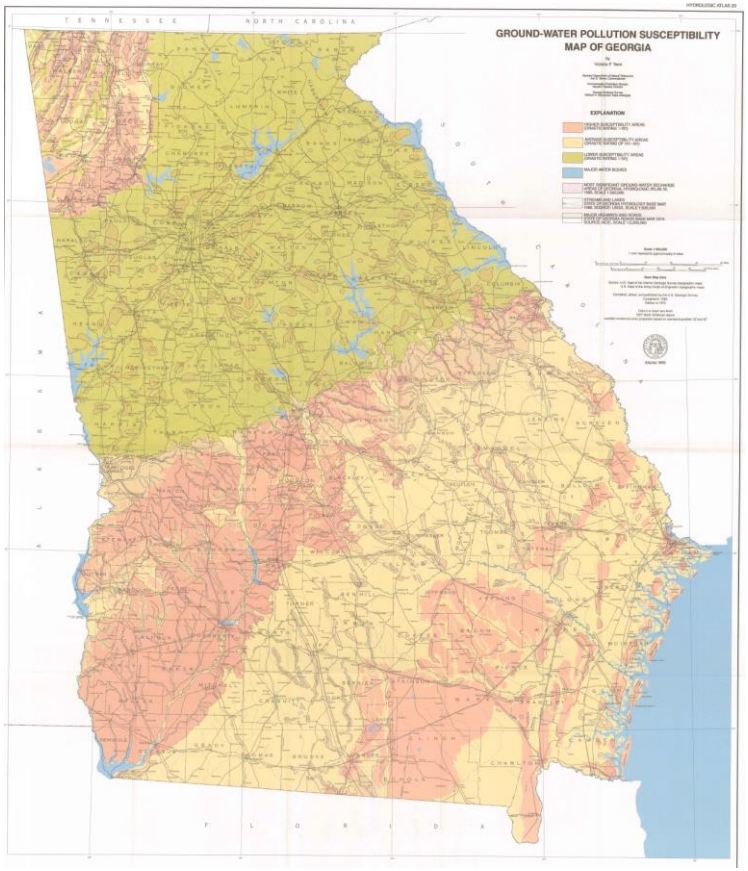
PFAS UPDATE – FEDERAL ACTIONS

- EPA published the fifth Unregulated Contaminant Monitoring Rule (UCMR) on December 27, 2021. Between 2023 and 2025, PWSs will collect samples for analysis of 30 chemical contaminants – 29 species of PFAS and lithium. None of these contaminants have final MCLs associated with them.
- UCMR 5 includes:

System Size (# of people served)	System Participation in Monitoring for 30 Contaminants
Small Systems (fewer than 3,000)	800 randomly selected surface water (SW), ground water under the direct influence of surface water (GWUDI), mixed sources (MX) and ground water (GW) systems
Small Systems (3,300 – 10,000)	All SW, GWUDI, MX, and GW systems
Large Systems (10,001 and over)	All SW, GWUDI, MX, and GW systems

EPD PFAS SURVEY – PHASE III

- To supplement UCMR5, EPD is initiating a final third phase of monitoring.
- Phase III focuses on targeted PWSs that would not be included in UCMR5, specifically:
  - PWSs that serve a population between 500 and 3300 and
  - rely on groundwater in those areas where groundwater is highly susceptible to pollution.



PFAS UPDATE – FEDERAL ACTIONS

- December 5, 2022 – EPA published a memo titled, "Addressing PFAS Discharges in NPDES Permits and Through the Pretreatment Program and Monitoring Programs."
  - EPA indicates that this memo supports the PFAS Strategic Roadmap, specifically, the goal to "leverage NPDES permitting to restrict the discharge of PFAS at their sources."
  - Includes recommended permit conditions, including:
    - Industries: effluent monitoring and BMPs
    - POTWs: effluent, influent, and biosolids monitoring, various pretreatment program requirements for IU discharging to POTWs, including BMPs and local limits.
  - Also includes recommendations for public noticing draft permits with PFAS-specific conditions, including sending a copy of the permit to the downstream PWS.

PFAS UPDATE – FEDERAL ACTIONS

- April/May 2022 – EPA published, "Draft Recommended Aquatic Life Ambient Water Quality Criteria for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonic Acid (PFOS)"

TABLE 1—DRAFT RECOMMENDED FRESHWATER AQUATIC LIFE WATER QUALITY CRITERIA FOR PFOA AND PFOS

Criteria component	Acute water column (CMC) [1]	Chronic water column (CCC) [2]	Invertebrate whole-body (mg/kg ww[3])	Fish whole-body (mg/kg ww)	Fish muscle (mg/kg ww)
PFOA Magnitude	49 mg/L	0.094 mg/L	1.11	6.10	0.125
PFOS Magnitude	3.0 mg/L	0.0084 mg/L	0.937	6.75	2.91
Duration	1-hour average	4-day average	Instantaneous.[4]		
Frequency	Not to be exceeded more than once in three years, on average.	Not to be exceeded more than once in three years, on average.	Not to be exceeded more than once in ten years, on average.		

[1] Criterion Maximum Concentration.
[2] Criterion Continuous Concentration.
[3] Wet Weight.
[4] Tissue data provide instantaneous point measurements that reflect integrative accumulation of PFOA or PFOS over time and space in aquatic life population(s) at a given site.

PFAS UPDATE – FEDERAL ACTIONS

- ELGs: EPA finalized Effluent Guidelines Program Plan 15 on January 20, 2023.
  - Initiate rulemaking to revise limitations for organic chemicals, plastics and synthetic fibers AND metal finishing and electroplating to address PFAS.
  - EPA determined that revisions to the ELGs for landfills are warranted.
  - EPD intends to expand the detailed study of the Textile Milles Category.
  - EPA announced its intent to initiate a POTW Influent Study of PFAS, which will focus on collecting nationwide data on industrial discharges of PFAS to POTWs.

PFAS UPDATE – FEDERAL ACTIONS

- MCLs
  - EPA proposed MCLs on March 14, 2023.
  - EPA will also hold a virtual public hearing on May 4, 2023.

Compound	Proposed MCLG	Proposed MCL (enforceable levels)
PFOA	Zero	4.0 parts per trillion (also expressed as ng/L)
PFOS	Zero	4.0 ppt
PFNA	1.0 (unitless) Hazard Index	1.0 (unitless) Hazard Index
PFHxS		
PFBS		
HFPO-DA (commonly referred to as GenX Chemicals)		

The proposed rule would also require public water systems to:

- Monitor for these PFAS
- Notify the public of the levels of these PFAS
- Reduce the levels of these PFAS in drinking water if they exceed the proposed standards.

$$\text{Hazard Index} = \left(\frac{[\text{GenX}_{\text{water}}]}{[10\text{ ppt}]}\right) + \left(\frac{[\text{PFBS}_{\text{water}}]}{[2000\text{ ppt}]}\right) + \left(\frac{[\text{PFNA}_{\text{water}}]}{[10\text{ ppt}]}\right) + \left(\frac{[\text{PFHxS}_{\text{water}}]}{[9.0\text{ ppt}]}\right)$$

LEAD SERVICE LINES

LEAD AND COPPER RULE REVISIONS AND IMPROVEMENTS

- Lead and Copper Rule Revisions (LCRR)
  - Lead Service Line Inventories (LSLI) – The compliance deadline for LSLI remains October 16, 2024. EPA published guidance in 2022.
  - EPD and GEFA are partnering to identify an appropriate vendor for LSLI software.
- Lead and Copper Rule Improvements (LCRI)
  - EPA plans to propose a LCRI National Primary Drinking Water Regulation, which EPA intends to promulgate prior to October 16, 2024.
  - The four key focus areas for rulemaking are:
    - Replacing all lead service lines.
    - Compliance tap sampling.
    - Action and trigger levels.
    - Prioritizing historically underserved communities.

A LOOK AHEAD THROUGH 2023 – INITIATIVES

- Make regular progress on Nutrient Permitting Strategy following the draft Roadmap.
- Complete EPD's PFAS monitoring plan and work with PWSs as EPA makes progress on their PFAS Strategic Roadmap.
- Make progress on LSLI efforts and track LCRI.
- Finalize Regional Water Plan updates in June 2023.

QUESTIONS

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